



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Gabriel A. Garnica	Project Number J0112
Project Title How Airfoil Angles Affect Lift	
Objectives/Goals I'm testing whether changing the angle of an airfoil/wing affects the lift (or downward force) generated by air flowing over and under the airfoil/wing.	
Abstract	
Methods/Materials My testing consists of creating a wind-tunnel made of cardboard, which airfoils made of balsa wood and of different degree angles will be subject to wind force by a household fan placed at the front of the wind-tunnel, whose force on the airfoil will then be measured on a digital scale	
Results The results confirm that the degree of different angles does affect upward or downward force on the airfoil/wing.	
Conclusions/Discussion Since changing the angle of an airfoil affects both upward force (lift) and downward force, one can conclude that one can control the rise and speed of decent of an aircraft by changing the airfoils of an airplane wing. One can also conclude that the same principle could be applied to turbines and other machinery using fins of differing angles, thereby increasing air and water intake and speed of the turbines and machinery.	
Summary Statement My project is about whether changing the degree of the angle of an airfoil on an aircraft will affect the amount of lift or decent of the aircraft as generated by the upward pressure and downward pressure of the airfoil angle.	
Help Received My father helped me by directing me to where I could find information on aerodynamics and explaining to me the principles I found.	